

**ORDER**

**U. S. Department of Transportation  
Federal Aviation Administration**

8260.39A

12/29/99

**SUBJ: CLOSE PARALLEL ILS/MLS APPROACHES**

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**1. PURPOSE.** This order provides criteria for establishing simultaneous independent instrument landing system (ILS)/microwave landing system (MLS) precision approaches to close-spaced dual parallel runways. These criteria are based on the use of precision runway monitoring (PRM) and are applicable to parallel runways with centerlines separated by 3,400 to 4,300 feet, or to parallel runways separated by at least 3,000 feet with a localizer offset of 2.5°, but not more than 3.0°. Criteria in this order is based on results of data collected from the Multiparallel Approach Program.

**2. DISTRIBUTION.** This order is distributed in Washington headquarters to the branch level in the Offices of System Safety; Aviation Policy and Plans; Aviation Research; Communications, Navigation, and Surveillance Systems; and Airport Safety and Standards; to Air Traffic Systems Development Directorate; to Flight Standards, Air Traffic, and Airway Facilities Services; to the National Flight Procedures Office, and the National Airway Systems Engineering and Regulatory Standards Divisions at the Mike Monroney Aeronautical Center; to the branch level in the regional Flight Standards, Air Traffic, Airway Facilities, and Airports Divisions; to all Flight Inspection Offices; the Flight Standards District Offices; Airway Facilities Field Offices; to all addressees on special distribution lists ZVS-827 and ZAT-423; and special Military and Public addressees.

**3. CANCELLATION.** Order 8260.39, Close Parallel ILS/MLS Approaches, dated February 18, 1994, is canceled.

**4. BACKGROUND.** Extensive tests have disclosed that under certain conditions, capacity at the nation's busiest airports may be increased with independent simultaneous parallel approaches to runways that are more closely spaced than the minimum of 4,300 feet currently required in Order 8260.3B, U.S. Standard for Terminal Instrument Procedures (TERPS). Tests have shown that a reduction in minimum separation between parallel runways may be achieved by use of high update radar with high resolution displays and automated blunder alerts.

**5. EXPLANATION OF CHANGES.** This change clarifies criteria requirements for independent simultaneous close parallel operations to runways having centerlines spaced less than 4,300 feet, but not less than 3,000 feet. New criteria has also been added for a 2.5° localizer offset to parallel runways separated by at least 3,000 feet.

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**6. GENERAL.** Criteria contained in this order are designed for independent simultaneous precision ILS or MLS operations to dual parallel runways with centerlines separated by at least 3,000 feet, but less than 4,300 feet. Simultaneous close parallel operations at airport elevations above 1,000 feet MSL and deviations from these criteria or glidepath angles above the U.S. civil standard of  $3.0^\circ$  shall not be established without approval from the Flight Standards Service, FAA, Washington, DC. When runway spacing is less than 3,400 feet, but not less than 3,000 feet, the localizers/azimuth stations in the close runway pair must be aligned at least  $2\text{--}1/2^\circ$  divergent from each other, but not more than  $3.0^\circ$ , and an electronically scanned (E-Scan) radar with an update interval of 1.0 second must be employed. All close parallel ILS/MLS operations require final approach radar monitoring, accurate to within 1.0 milliradian, an update interval of 1.0 second, and a final monitor aid (a high resolution display with automated blunder alerts). In these criteria, ILS “glide slope/localizer” terms are synonymous to and may be used interchangeably with MLS “elevation/azimuth” terms. Independent simultaneous close parallel approaches without altitude separation should not be authorized at distances greater than 10 NM from threshold. If Air Traffic Control (ATC) systems and procedures are established which assure minimal no transgression zone (NTZ) intrusions, this distance may be extended up to 12.5 NM. A separate instrument approach chart described as a close parallel ILS/MLS procedure with special requirements shall be published for each runway in the close parallel pair of runways. This close parallel ILS/MLS procedure is to be identified in accordance with paragraph 8. A standard ILS/MLS procedure may also exist or be published for each of the runways. During close parallel ILS/MLS operations, the close parallel ILS/MLS may overlay the existing standard ILS/MLS procedure, provided that spacing localizer/azimuth alignment is 3,400 feet or more and the missed approaches diverge. A breakout obstacle assessment specified in Order 8260.41, Obstacle Assessment Surface Evaluation for Independent Simultaneous Parallel Precision Operations, shall be completed as part of the initial evaluation for parallel operations described in this order. Unless otherwise specified in this order, criteria in Orders 8260.3B and 8260.36A, Civil Utilization of Microwave Landing System (MLS), shall apply.

**7. SYSTEM COMPONENTS.** Simultaneous close parallel approach procedures are not authorized if any component of the Precision Runway Monitor (PRM) system is inoperative. System requirements for simultaneous close parallel approach procedures are:

**a. ILS/MLS.** A full ILS or MLS on each runway.

**b. PRM.** A PRM system includes the following:

**(1) Radar.** Phased array electronically scanned (E-Scan) antenna; update intervals of 1.0 second.

**(2) Final Monitor Aid (FMA).** Large (not less than 20” x 20”), high resolution (100 pixels/inch minimum), color monitors with associated visual and audible alerts.

**(a) A caution alert** when the system predicts that an aircraft will enter the NTZ within 10 seconds (e.g., the target symbol and data block change from green to yellow and a voice alert sounds).

(b) **A warning alert** when the aircraft has penetrated the NTZ (e.g., the target symbol and data block change to red).

(c) **A surveillance alert** when the track for a monitored aircraft inside the monitor zone has been in a coast state for more than three consecutive updates (e.g., the target symbol and data block change to red).

**8. PROCEDURE CHARTING.** Order 8260.3B, paragraph 161, applies, except where a separate procedure is published. In this case, **“ILS/MLS PRM”** should precede the approach title identification; e.g., **“ILS PRM, RWY 27R”** (simultaneous close parallel). Notes for approach charts for use in the close parallel operation shall be published in bold and caps as follows: **“SIMULTANEOUS CLOSE PARALLEL APPROACHES AUTHORIZED WITH RUNWAYS (NUMBER) L/R”** and **“LOCALIZER ONLY NOT AUTHORIZED DURING CLOSE-PARALLEL OPERATIONS.”** The following shall also be noted: **“DUAL VHF COMM REQUIRED,” “MONITOR PRM CONTROLLER (FREQ) ON RWY ( ) L, (FREQ) ON RWY ( ) R,”** and **“SEE ADDITIONAL REQUIREMENTS ON ADJACENT INFORMATION PAGE.”**

## **9. TERMINOLOGY.**

**a. Automated Alert.** A feature of the PRM that provides visual and/or audible alerts to the monitor controller when an aircraft is projected to enter or has entered the NTZ. Paragraph 7b(2) defines the PRM systems alerts.

**b. Breakout.** A technique to direct aircraft out of the approach stream. In the context of close parallel operations, a breakout is used to direct threatened aircraft away from a deviating aircraft.

**c. Close Parallels.** Two parallel runways whose extended centerlines are separated by at least 3,400 feet, but less than 4,300 feet, having a precision runway monitoring system that permits simultaneous independent ILS/MLS approaches. Runways are separated by less than 3,400 to 3,000 feet with a localizer offset of not more than 3.0°.

**d. E-Scan Radar.** An electronically scanned phased array radar antenna that is cylindrical and stationary. It consists of interrogators and a surveillance processor providing an azimuth accuracy of at least 1 milliradian (0.057°) remote monitoring subsystem (RMS) and an update interval of not more than 1.0 second.

**e. Localizer/Azimuth Offset.** An angular offset of the localizer/azimuth from the runway extended centerline in a direction away from the NTZ that increases the normal operating zone (NOZ) width.

**f. Monitor Zone.** The monitor zone is the volume of airspace within which the final monitor controllers are monitoring close parallel approaches and PRM system automated alerts are active.

**g. No Transgression Zone (NTZ).** The NTZ is a 2,000-foot wide zone, located equidistant between parallel runway final approach courses in which flight is not allowed (see figure 1).

**h. Normal Operating Zone (NOZ).** The NOZ is the operating zone within which aircraft flight remains during normal independent simultaneous parallel approaches (see figure 1).

**i. Precision Runway Monitor (PRM).** A specialized ATC radar system providing continuous surveillance throughout the monitoring control zone. It includes a high accuracy, high update rate sensor system, and for each runway, a high resolution color FMA with automated alerts. The PRM system provides each monitor controller with a clear, precise presentation of aircraft conducting approaches.

**10. FEEDER ROUTES.** Order 8260.3B, chapter 2, sections 2 and 3 apply.

**11. INITIAL APPROACH SEGMENT.** Apply Order 8260.3B, chapter 2, section 3, except as stated in this order. The initial approach shall be made from a NAVAID, fix, or radar vector. Procedure turns and high altitude penetration procedures shall not be authorized.

**a. Altitude Selection.** Altitudes selected shall provide obstacle clearance requirements and a minimum of 1,000 feet vertical separation between aircraft on the two parallel final approach courses in the interval from localizer intercept to glide slope capture.

**b. Localizer Intercept Point.** Apply Order 8260.3B, paragraph 922, except optimum localizer intercept angles are 20° or less and the maximum intercept angle shall not exceed 30°.

**12. NTZ.** An NTZ is established and depicted on the FMA as a protected zone 2,000 feet wide, equidistant between parallel runway centerlines, beginning from the point where adjacent inbound aircraft first lose 1,000 feet of vertical separation, and extends to 0.5 NM beyond the farthest departure end of runway (DER), or the point where a combined 45° divergence occurs, whichever is farthest. The beginning of the NTZ for the final segment should begin at the most distant precision final approach fix (PFAF) (see figure 1). Where an offset localizer is determined to provide operational advantage, the NTZ shall be established for the final segment equidistant between adjacent final approach courses beginning and ending as stated above (see figure 1).

**13. NOZ.** An NOZ is established so that the NOZ for each close parallel runway is not less than 700 feet wide on each side of the approach course at any point. For the offset localizer case, an NOZ is established so that the NOZ for each close parallel runway is not less than 500 feet wide on each side of the approach course at any point. The width of the NOZ is equal on each side of the final approach course centerline, and the half-width is defined by the distance from the nearest edge of the NTZ to the final approach course centerline. The length of the NOZ equals the length of the NTZ. Each parallel runway provides a NOZ for the final and missed approach segments that equal the length of the NTZ (see figure 1).

**14. MINIMUMS.** For close parallel procedures, only straight-in precision minimums apply.

**15. INTERMEDIATE APPROACH SEGMENT.** Order 8260.3B, paragraph 922, applies, except where close parallel procedures have a straight intermediate segment aligned with the final approach course. Where an existing ILS/MLS procedure is published with a transition intercept angle greater than 30° which cannot be reduced, a separate close parallel procedure shall be established with intercept angles of less than 30°.

**16. FINAL APPROACH SEGMENT.** Orders 8260.3B and 8260.36 apply. In addition to these criteria, independent simultaneous approaches to close parallel runways require the following:

**a. Close Parallel Approach Separation.** Approaches shall have a minimum of 3,400-foot separation between the parallel final approach courses.

**b. PRM.** A PRM system must be in operation and providing service in accordance with paragraph 7.

**c. NTZ.** An appropriate NTZ shall be established between close parallel final approach courses as described in paragraph 12 (see figure 1).

**d. NOZ.** Appropriate NOZ's shall be established for each parallel final approach segment as described in paragraph 13 (see figure 1).

**e. Staggered Runway Thresholds.** Where thresholds are staggered, the glide slope intercept point from the most distant runway approach threshold should not be more than 10 NM. It is recommended that the approach with the higher intercept altitude be the runway having the most distant approach threshold (from the point of view of an aircraft on approach (see figure 1)).

**f. Localizer/Azimuth Offset.** Where an offset localizer is utilized, apply Order 8260.3B, paragraph 930a. Where approach thresholds are staggered, the offset localizer course should be to the runway having the nearest approach threshold (from the point of view of an aircraft on approach). An offset requires a 50-foot increase in decision height (DH) and is not authorized for Category II and III approaches. (Autopilots with autoland are programmed for localizers to be on runway centerline only.) The NTZ shall be established equidistant between final approach courses.

**g. Monitor Zone.** This zone is a radar monitored volume of airspace within which the PRM system automated alerts are active. The extent of the monitor zone is:

**(1) Monitor Zone Length.** The PRM monitor zone begins where aircraft conducting simultaneous parallel approaches reach less than 1,000-foot vertical separation during final approach (typically at glide slope intercept for the higher altitude localizer intercept) and extends to 0.5 NM beyond the farthest DER, or the point where a 45° divergence occurs, whichever generates the greatest length for the monitor zone.

**(2) Monitor Zone Width.** The PRM monitor zone (automated alerts) includes all of the area between the final approach courses and extends 0.5 NM outboard of each final approach course centerline.

**(3) Monitor Zone Height.** The PRM monitor zone height may be defined in as many as five separate segments, each having an independent maximum height. Each segment covers the entire monitor zone width, and a portion of the monitor zone length. Within each segment, the monitor zone height extends from 50 feet above ground level to a minimum of 1,000 feet above the highest point within that segment of the glide slope, the runway surface, or the missed approach course, whichever attains the highest altitude.

**17. MISSED APPROACH SEGMENT.** Except as stated in this order, Orders 8260.3B and 8260.36 apply. Missed approach procedures for close parallels shall specify a turn as soon as possible after reaching a minimum of 400 feet above the TDZE, and diverge at a minimum of 45°. The turn points specified for the two parallel procedures should be established at the end of the straight segment minimum of 1.5 NM. A 45° divergence shall be established by 0.5 NM past the most distant DER. Where an offset localizer is used, the first missed approach turn point shall be established so that the applicable flight track radius (table 5, Order 8260.3B), constructed in accordance with Order 8260, 3B, chapter 2, section 7, for the fastest category aircraft expected to utilize the offset course, shall not be less than 700 feet from the NTZ.

**a. NTZ.** The NTZ shall be continued into the missed approach segment, as defined in paragraph 12 (see figure 1).

**b. NOZ.** The NOZ shall be continued into the missed approach segment, as defined in paragraph 13 (see figure 1).

**18. INFORMATION UPDATE.** Any deficiencies found, clarification needed, or improvements to be suggested regarding the content of this order, shall be forwarded for consideration to:

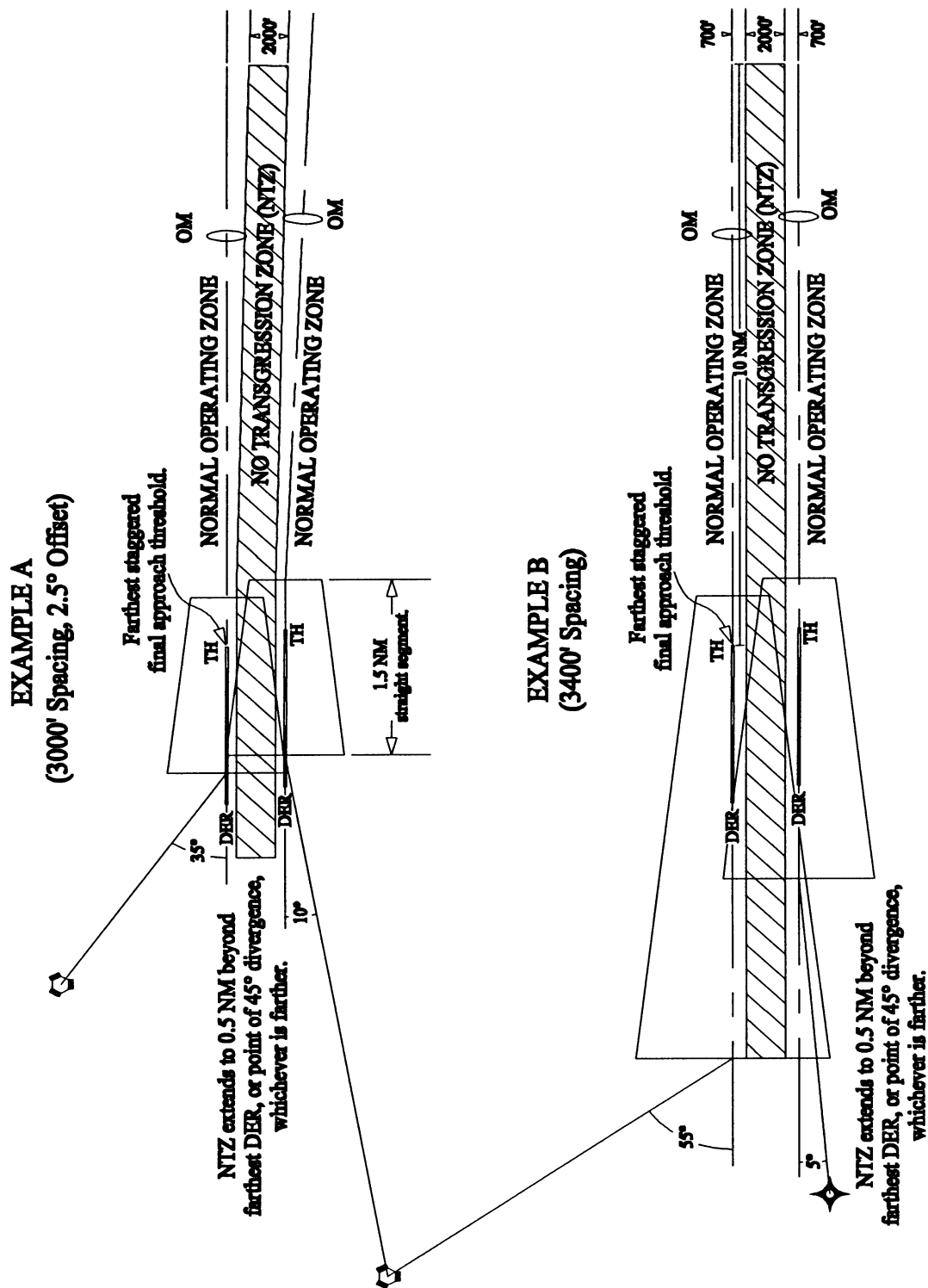
DOT/FAA  
ATTN: Flight Procedure Standards Branch, AFS-420  
P.O. Box 25082  
Oklahoma City, OK 73125

**a. Your Assistance is Welcome.** FAA Form 1320-19, Directive Feedback Information, is included at the end of this order for your convenience.

**b. Use the "Other Comments" block of this form to provide a complete explanation of why the suggested change is necessary.**

L. Nicholas Lacey  
Director, Flight Standards Service

**FIGURE 1. EXAMPLES OF CLOSE PARALLEL FINALS AND MISSED APPROACH SEGMENTS, RUNWAY SPACING 3000' AND 3400'**



## Directive Feedback Information

Please submit any written comments or recommendations for improving this directive, or suggest new items or subjects to be added to it. Also, if you find an error, please tell us about it.

Subject: Order 8260.39A, Close Parallel ILS/MLS Approaches

To: DOT/FAA  
Flight Procedure Standards Branch, AFS-420  
P.O. Box 25082  
Oklahoma City, OK 73125

*(Please check all appropriate line items)*

An error (procedural or typographical) has been noted in paragraph \_\_\_\_\_ on page \_\_\_\_\_.

Recommend paragraph \_\_\_\_\_ on page \_\_\_\_\_ be changed as follows:  
*(attach separate sheet if necessary)*

In a future change to this directive, please include coverage on the following subject:  
*(briefly describe what you want added):*

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